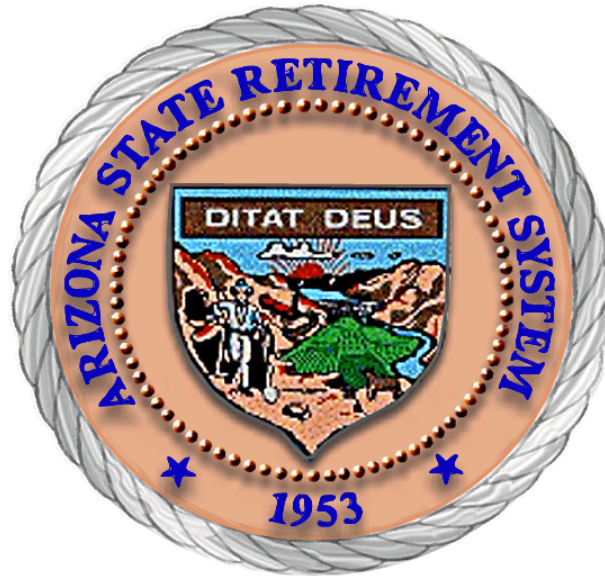


Arizona State Retirement System Board



Private Equity Asset Class Review

Mr. Gary Dokes, Chief Investment Officer
Mr. Richard Henkel, Private Equity Portfolio Manager
Mr. Brett Nelson, Principal, Ennis Knupp
Ms. Shari Young, Senior Investment Analyst, Ennis Knupp

November 21, 2008

Discussion Items

- ASRS Private Equity Program Background
- Where Are We Now (November 2008)
- Current Areas Under Review
- Private Equity Market Update/ ASRS Performance Report (Ennis Knupp)

ASRS Private Equity Program Background

Board Authorized Private Equity Program	October 2006
Private Equity Program Manager Hired	January 3, 2007
Consultants Hired	May 1, 2007
Strategic Plan Approved	July 20, 2007
Private Equity Committee First Meeting	July 27, 2007
Tactical Allocation Plan: Approved	August 2, 2007
First PE Investment Manager Approved	September 26, 2007
32 Managers Subscribed, 9 in Discussions	Today

ASRS Private Equity Program Background

Allocation and Performance Objectives

Strategic Asset Allocation Policy:

5% +/- 2% of ASRS Total System Fund (TSF)

(TSF) = \$25B when initiated = \$1.25B to 1.75B invested)

Over-commitment of Funding Recognized to Meet Investment Goal

Benchmark Returns:

Absolute Return = 11% net (Actuarial Return 8% plus 3%) – over 10 yrs

Relative Return = Russell 3000 + 300 bps net over 10 years

ASRS Private Equity Program Background

Investment Planning (long-term)

Asset Class Categories:	Allocation ⁽¹⁾	Returns
Corporate Finance	65% (55-75%)	10-20% Net
Special Situations	25% (15-35%)	10-15% Net
Venture Capital	10% (5-20%)	15-20% Net

(1) The “Targets” are included in the Strategic Plan and represent guidelines for a mature program subject to economic change or crisis.

Tactical Investment Themes – Invest In:

- Mid to smaller size companies where leverage multiples are smaller (preference)
- Recession resistant sectors (preference)
- Build companies organically

Where Are We Now (November 2008)

- 32 Investment Managers Signed Since September 2007
- Committed Capital (all 32 Managers) = \$ 1,283 MM
- 9 New Managers by Year End – Additional \$'s = \$ 520 MM
- Capital Drawn by 27 of 32 Managers = \$ 248 MM
- Capital Committed to the 2.d. Managers = \$ 1,023 MM
- Capital Drawn/Capital Committed = 24.2%
- Capital Drawn/Total ASRS Plan Value = 1.24%⁽¹⁾

Notes: (1) Target – 5% +/- 2% of Total ASRS Fund

Where Are We Now (November 2008)

Total Targeted Portfolio Company ⁽¹⁾ Size – to Date

(# of Funds) Subscribed Capital Committed \$MMs

Mega/P2P	Large	Midsize ⁽²⁾	Small/Micro ⁽²⁾	Totals	Asset Class
(3) \$170	(3) \$180	(9) \$420	(5) \$168	(20) \$938	Corp Finance
(2) \$130	(1) \$40	(2) \$90	(1) \$20	(6) \$280	<i>Special Situations</i>
NA	NA	NA	(6) \$65	(6) \$65	<i>Venture Capital</i>
<u>(5) \$300</u>	<u>(4) \$220</u>	<u>(11) \$510</u>	<u>(12) \$253</u>	(32) \$1,283	<u>Totals</u>

(1) The Portfolio Companies under Partnerships is approximately 200

(2) 72% of the Managers for 60% of Committed Capital targets Midsize and Small Companies

Where Are We Now (November 2008)

PE Asset Allocation July 2007 (Initial) and November 2008 Data

	Invested-Actual	Invested – Plan	Invested New Base	Committed
Total Plan Size	\$20B	\$25B	\$20B	\$20B
% Allocation	1.24%	5%-7%	5%-7%	
Capital \$MM	\$248⁽¹⁾	\$1,250-\$1,750 ⁽¹⁾	\$1,000-\$1400 ⁽¹⁾	\$1,283⁽²⁾
Corp Finance	\$156 (63%)	55-75%	74-103%	\$938 (73%)
Special Sits	\$80 (32%)	15-35%	38-53%	\$280 (22%)
Venture	\$12 (5%)	5-20%	6-8%	\$65 (5%)

Notes: (1) Invested/Drawn Capital. (2) Committed (Subscribed) Capital (5-6 year Draw)

Where Are We Now (November 2008)

RFP Released to Out Source Back Office

- Private Equity, Real Estate, & Opportunistic Classes
- Solicitation for Discretionary Private Equity Managers

RFP for Separate Account (Discretionary) Managers

- An RFP response for the above is slated in December. The Private Equity Committee and the Investment Committee will consider investment additions that may result from solicitation awards.

Where Are We Now (November 2008)

- Strawman planning numbers suggest an additional PE Subscription commitment of \$1B over three years raising ASRS total estimated Subscribed Capital from \$1,803 to \$2,803 MM.
- Time to actually invest this additional capital would be stretched over Calendar Year 2009 through 2015.

Current Areas Under Review

- Mezzanine Funds (High Coupons, Equity Kickers, 2-3 Year No Calls)
- Secondary Sales – Rapidly Growing Supply as Banks, Insurance Companies deleverage and Pension Plans suffer from Asset Value Decreases
- Large, Midsize, and Small Buyout, Special Situations with deal sizes less than \$1B present opportunities at falling valuations.
- Corporate Spin outs and By & Build Strategies for Strategic Sales will stimulate M&A and Private Equity Investing for those that have liquidity
- Venture has its place (Later Stage “B” Tranche on though Growth Equity and transition to Small Buyout)
- Continue with Recession resistant investing or in areas that present overriding demographics

Private Equity Market Update/ ASRS Performance Report (Ennis Knupp)

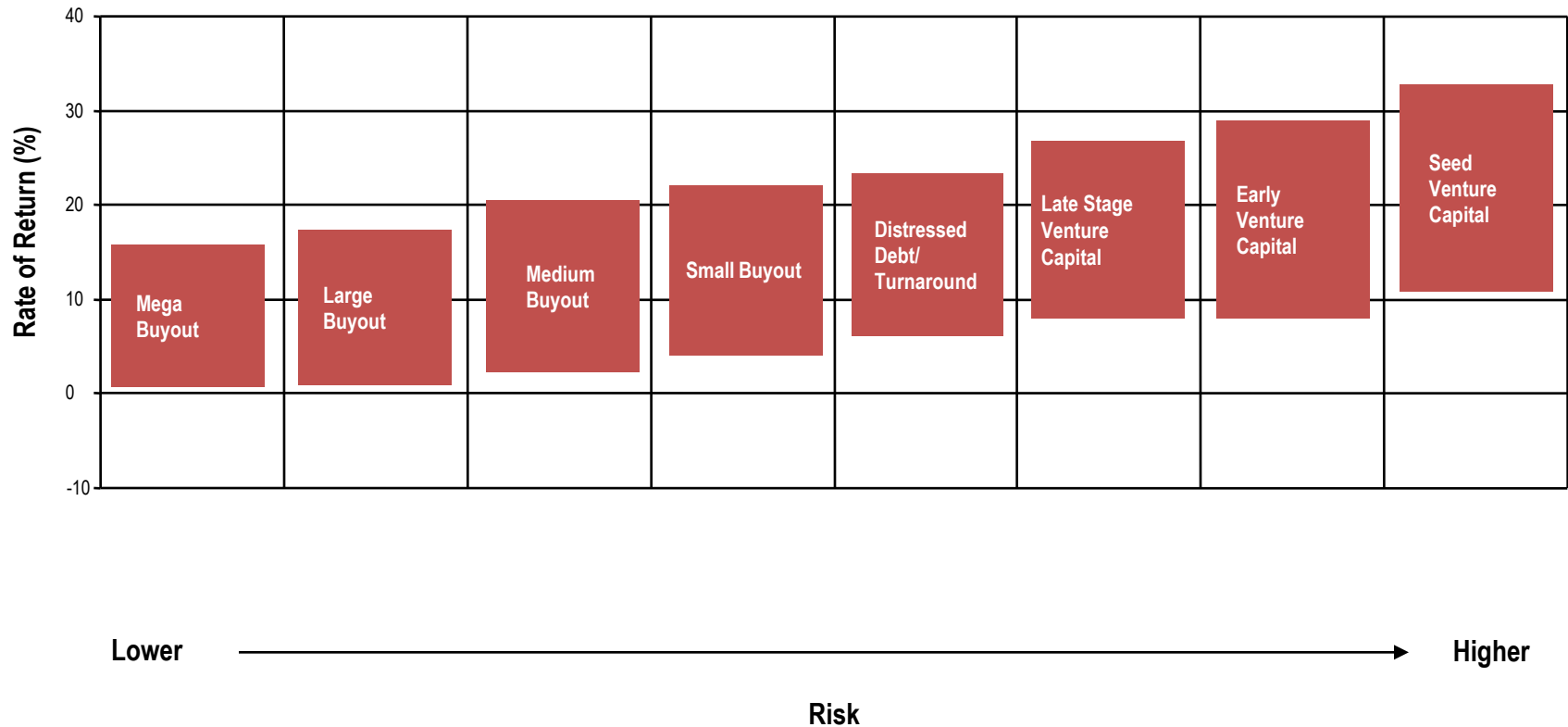
Topics

- Private Equity Market Overview
- Investment Distribution (Strategy, Industry, Geography)
- Return and Benchmark Data
- Projected cash flow pacing of investments

Private Equity Market Overview

- Current private equity market environment
 - Credit crisis impacts funds' ability to obtain acquisition debt resulting in slower deal flow
 - Valuations have started to come down on private companies since public market valuations have declined, providing attracting buying opportunities
 - Exiting through M&A has become the only viable exit since IPO and recapitalizations are unavailable
- Despite the weak economic environment, opportunities continue to exist within the various private equity strategies
 - Buyout
 - Distressed debt
 - Mezzanine
 - Venture Capital
- Market impact on ASRS' private equity program
 - ASRS is new to private equity – focus on buying opportunities vs. exiting
 - Attractive opportunities and strong return potential continues to exist for ASRS

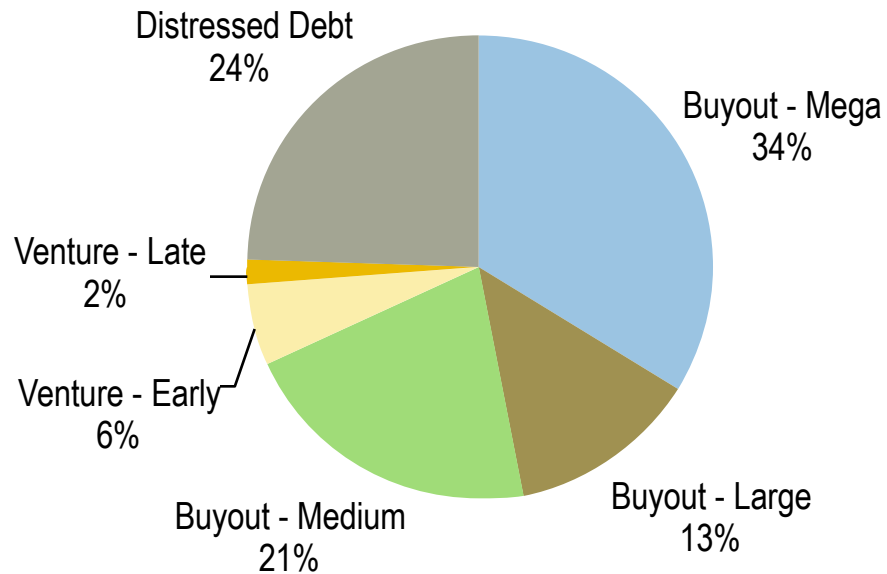
Private Equity Risk/ Return Spectrum



ASRS Private Equity Program – Diversification

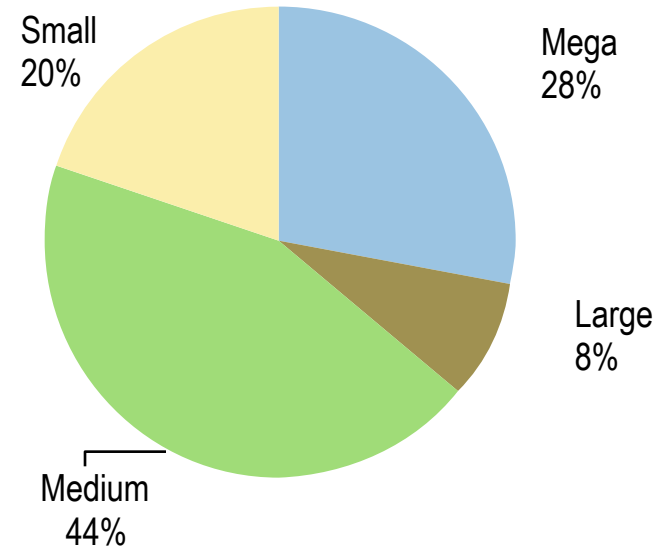
As of June 30, 2008

Strategy Diversification by Fund Size



Strategy	Allocation
Corporate Finance:	65% (55-75%)
Special Situations:	25% (15-35%)
Venture Capital:	10% (5-20%)

Strategy Diversification by Portfolio Company Value

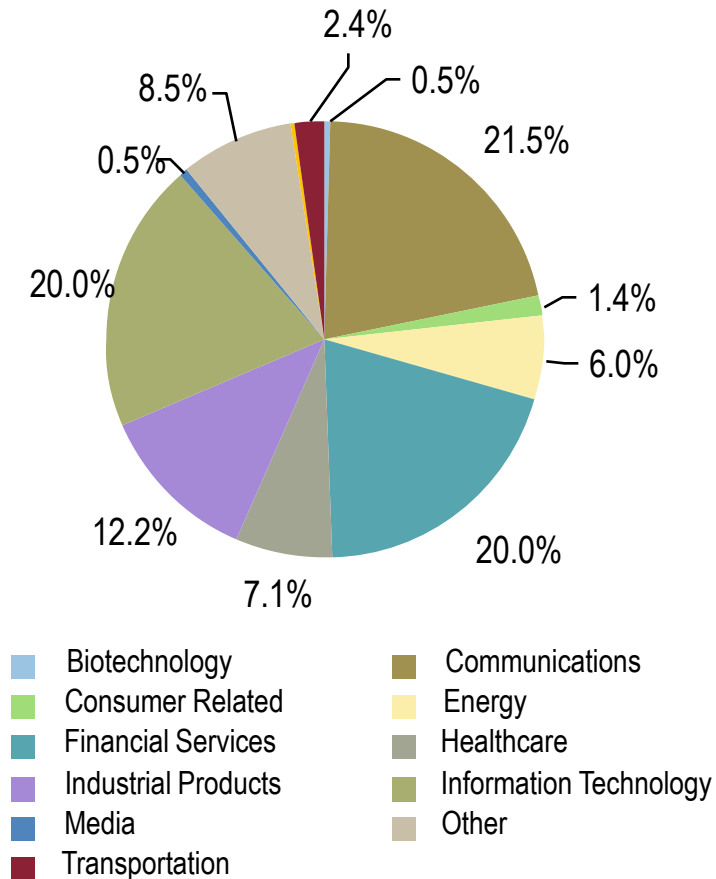


	Allocations by Fund Size	Allocations by Portfolio Company Value
Small:	< \$500 MM	Company value < \$100MM
Medium :	\$500 MM – \$1 B	Company value \$100MM - \$1B
Large:	\$1 B – \$5 B	Company value \$1 B – \$3 B
Mega:	> \$5 B	Company value > \$3 B

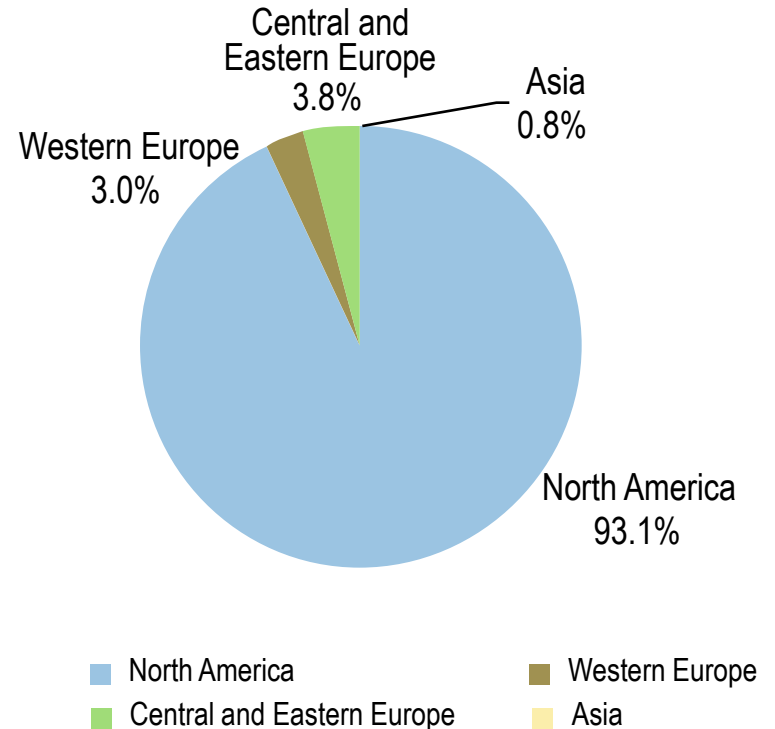
ASRS Private Equity Program – Diversification

As of June 30, 2008

Industry Diversification by Market Value



Geographic Diversification by Market Value



ASRS Private Equity Program – Return and Benchmark

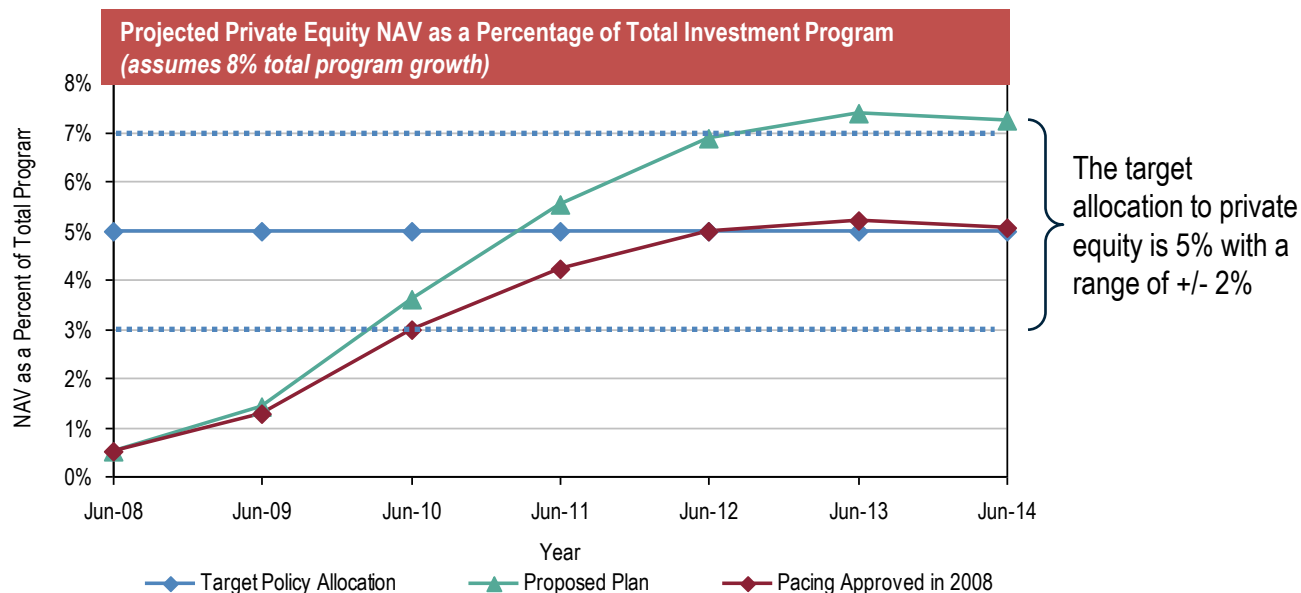
As of June 30, 2008

ASRS' private equity program benchmark returns will not be meaningful until at least two to three years into the life of each fund.

Strategy	TVPI			Net IRR from Inception		
	Portfolio	VE Benchmark ¹	Over / (Under)	Portfolio	VE Benchmark	Over / (Under)
Venture Capital	0.9x	0.9x	0.0x	(11.3%)	(9.0%)	(2.3%)
Buyouts	1.0	0.9	0.1	(6.9%)	(28.0%)	21.2%
Special Situations	0.9	0.9	-0.1	(24.4%)	(11.4%)	(13.0%)
Total Fund	1.0x	0.9x	0.1x	-14.0%	-18.7%	4.7%

Strategy	Returns			Benchmark	
	TVPI	Net IRR	Time-Weighted	Absolute Return	Russell 3000 + 300bps
Total Fund	1.0x	(14.0%)	(9.1%)	11.0%	(15.4%)

Projected Cash Flow Pacing of Investments



Sub-Asset Class	2007	2008	2009	2010	2011	2012	2013	2014
Corporate Finance	\$220	\$660	\$340	\$340	\$340	\$325	\$325	\$350
Venture Capital	30	85	50	50	50	50	50	50
Special Situations	40	170	130	130	130	125	125	150
Fund-of-funds	28	0	0	0	0	0	0	0
Secondaries	50	80	0	0	0	0	0	0
Base Commitments (\$MM)	\$368	\$995	\$520	\$520	\$520	\$500	\$500	\$550
Separate Account	\$0	\$0	\$330	\$330	\$330	\$0	\$0	\$0
Total Commitments (\$MM)	\$368	\$995	\$850	\$850	\$850	\$500	\$500	\$550
Total Program NAV (\$B)	\$28.0	\$20.0	\$21.6	\$23.3	\$25.2	\$27.2	\$29.4	\$31.7
Growth Rate		8%	8%	8%	8%	8%	8%	8%

The separate accounts would contribute an additional ~\$1B above the base commitment previously approved

Appendix

A. ASRS Manager Status